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Discrimination of Ceramic Surface Finishing by Vertical Scanning Interferometry

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Abstract

© University of Oxford. Finishing techniques are significant markers of the technological 'know-how' involved in the production of the traditional, clay-based ceramic ware. In order to provide a reliable tool to discriminate among two main surface processing techniques-that is, smoothing and burnishing-vertical scanning interferometry (VSI), a recently developed non-destructive technique for analysing the surface roughness and topography, is applied. The smoothed areas have an obvious roughness expressed by linear structures. The latter are made of parallel ridges and trenches with an average depth of 15-20μm. Burnishing leads to a lower topography and a lower roughness compared to the smoothed surface section. VSI quantifies the spatial distribution of the surface building blocks, which consist of phyllosilicate aggregates of variable size. The statistical treatment of the roughness data obtained by VSI shows that the surface topography provides significant information on the pottery processing and a clear qualitative and quantitative discrimination between different surfaces. VSI supports the reconstitution of the chaîne opératoire for traditional ceramic pottery and the recognition of the surface finishing techniques.

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Keywords

Burnishing, Clay-based ceramic, Smoothing, Surface roughness, Vertical scanning interferometry